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Preliminary Announcement of the Courses of Study for the Summer Session, 1901, of Cornell University, has just been issued. During the session Dr. G. A. Miller will offer courses in Advanced Integral Calculus, History of Mathematics, and Introduction to the Theory of Groups and the Theory of Numbers.

BOOKS AND PERIODICALS.

Elements of Algebra. By James M. Taylor, A. M., LL. D., Professor of Mathematics, Colgate University. 8vo. Half Leather. 461 pages. Boston: Allyn & Bacon.

This book on Algebra is in keeping with the very excellent work on the Elements of the Calculus by the same author. Professor Taylor aims in this book at simplicity in method of presentation and at a natural and logical sequence in the series of steps which lead the student from his arithmetical experiences through his algebra, and in this, I think, he has succeeded admirably. Special attention is given to factoring, as it is the fundamental principal in the solution of quadratic and higher equations. The student who receives his preparatory mathematical training in a book of this character will have nothing to unlearn as he advances in his mathematical course. B. F. F.

The Elements of Astronomy. By Sir Robert Ball, LL. D., F. R. S., Lowndean Professor of Astronomy and Geometry in the University of Cambridge, and formerly Astronomer Royal of Ireland. 8vo. Cloth, viii+183 pages. Price, 80 cents. London and New York: The Macmillan Co.

The author, briefly but interestingly, traces the early beginnings of Astronomy in the introduction. He then devotes Chapter I. to Diurnal Motion; Chapter II.. The Sun; Chapter III., The Apparent Motion of the Sun; Chapter IV., The Moon; Chapter V., Gravitation; Chapter VI., Mercury and Venus; Chapter VII., Mars: Chapter VIII., The Asteroids; Chapter IX., Jupiter; Chapter X., Saturn; Chapter XI., Uranus and Neptune; Chapter XII., Comets; Chapter XIII., Shooting Stars; Chapter XIV., Stars and Nebulæ; Chapter XV., The Causes Affecting the Apparent Places of the Stars. There are eleven excellent plates in addition to numerous diagrams. For a brief, scientific exposition of Astronomy, this little book is superior. B. F. F.

The Principles of Mechanics. An Elementary Exposition for the Students of Physics. By Frederick Slate, Professor of Physics in the University of California. Part I. 12mo. Cloth, x+299 pages. Price, $1.90. New York: The Macmillan Co.

"The material contained in these chapters has taken on its present form gradually, by a process of recasting, and sifting. The ideas guiding that process have been three: First, to select the subject matter with close reference to the needs of college students; second, to bring the instruction into adjustment with the actual stage of their training; and, third, to aim continually at treating Mechanics as a system of organized thought, having a clearly recognizable culture value."—*Preface.* It is great satisfaction to note the emphasis that modern writers on various branches of mathematics are laying on the culture value of the study of mathematics. The work before us is one worthy the consideration of teachers desiring a first-class text on Mechanics. B F. F.

Calculus with Applications. An Introduction to the Mathematical Treatment of Science. By Ellen Hayes, Professor of Applied Mathematics in Wellesley College. 8vo. Cloth, vii+162 pages. Price, $1.20. Boston and Chicago: Allyn & Bacon.

This little treatise presents in an admirable way the practical application of the calculus to some of the problems of the natural sciences. To those who wish, for the purpose of culture, to know in a simple and direct way, what the Calculus is and what it is for and also for those who are engaged in work in Chemistry, Astronomy, Economics, etc., this book is well adapted. B. F. F.

Differential and Integral Calculus. With Applications. For Colleges, Universities, and Technical Schools. By E. W. Nichols, Professor of Mathematics in the Virginia Military Institute, and author of Nichols's Analytical Geometry. 8vo. Half Leather. xi+394 pages. Boston and Chicago: Allyn & Bacon.

This book is based upon the methods of "limits" and of "rates." Both methods are valuable; the former, however, has the advantage of greater rigor. Among the very commendable features of the book are: First, a large amount of explanations; second, clear and simple demonstrations of principles; third, geometrical, mechanical, and electrical applications; fourth, historical notes at the heads of chapters, giving a brief account of the discovery and development of the subject of which it treats; and fifth, foot notes calling attention to topics of special historic interest. B. F. F.

Esercizi ed Applicazioni di Trigonometria Piana, con 400 Escercizi e Problemi Propositi. Dal Prof. Christoforo Alasia. Milano, Italia: Ulrico Hoepli.

This book is a 12mo. cloth binding, containing 291 pages. It treats of the elements of Plane Trigonometry. Also some space is devoted to the discussion of "limits," "maxima" and "minima," and simultaneous trigonometric equations. There are thirty diagrams and 400 exercises. B. F. F.

Plane Trigonometry. By W. P. Durfee, Professor of Mathematics in Hobart College. 105 pages. Price, 80 cents. Boston: Ginn & Co. 1900.

This work covers the essential parts of Plane Trigonometry. The preliminary chapter on Computation is valuable. Stress is laid on the value of graphic methods in obtaining rough estimates; the limits of accuracy are pointed out, and the necessity of frequent checking is insisted on. The demonstrations are brief and they are illustrated by numerous exercises. The book admirably meets the needs of schools desiring a short course which is at the same time accurate. J. M. C.

Complete Trigonometry. By Webster Wells, S. B., Professor of Mathematics in the Massachusetts Institute of Technology. 171 pages. Price, 90 cents. Boston: D. C. Heath & Co. 1900.

The present volume is a revision of the author's Essentials of Trigonometry. Many improvements have been made, notably in the proofs of several of the functions, in the general demonstration of the formulae, in the solution of the right triangles by natural functions, and in the addition of a large number of examples. This is a brief but most satisfactory text. J. M. C.

Famous Geometrical Theorems and Problems. By William W. Rupert, C. E., Superintendent of Schools, Pottstown, Pa. 27 pages. Price, 10 cents. Boston: D. C. Heath & Co. 1900

This is No. 1 in the series of Heath's Mathematical Monographs, issued under the general editorship of Professor Webster Wells. It contains the history of several famous theorems with demonstrations under each case. Twenty-six independent demonstrations are given of the Pythagorean theorem. The book will give much pleasure to teachers interested in the subject. J. M. C.

Mensuration. By S. A. Furst. 71 pages. Price, 50 cents. Harrisburg, Pa.: R. L. Myers & Co. 1899.

This little volume is intended to be supplemental to text-books both on arithmetic and geometry. The special feature of the work is the application of the prismoidal formula to finding the volume of solids. The work has many interesting problems and will doubtless meet with approval. J. M. C.

The Hall Arithmetics, (1) Elementary; (2) Complete. By Frank H. Hall. 248 and 448 pages. Prices, 35 cents and 60 cents. New York and Chicago: The Werner School Book Co. 1899.

The prominent features of the Werner Arithmetics have been preserved in this series, but better adaption for use in ungraded schools has been secured. The books are progressive and practical in character, and abundant in the supply of concrete problems. In the treatment prominence is given the "magnitude idea," and the elements of algebra and geometry have been judiciously introduced. J. M. C.

New Practical and *New Higher Arithmetics*. By A. W. Rich, Ph., B., Associate Professor of Mathematics in the Iowa State Normal School. 222 and 320 pages. Prices, 50 cents and 75 cents, respectively. Chicago: A. Flanagan Co. 1900.

The *Practical* is intended for use in grammar grades. Special features are a set of tables and drills for mental work; a presentation of definitions and principles in compact form; model problem solutions; and a great variety of test work. In the *Higher* book the mathematical signs are systematically presented, the model solution feature is carried forward, and larger place is given to definitions and principles. Numerous exercises and problems are given in all the different subjects. J. M. C.

Hornbrook's Grammar School Arithmetic. By A. R. Hornbrook, A. M. 416 pages. Price, 65 cents. American Book Co. 1900.

This book is designed for the last four years of grammar school work, and aims to develop in the pupil a ready skill in dealing with numbers. In many respects this book differs from the ordinary texts. Much use is made of constructive work with simple geometric forms. The book will repay examination. J. M. C.

We are indebted to Prof. Alexander Macfarlane, D. Sc., LL. D., Lecturer on Mathematical Physics at Lehigh University, for a copy of *Space-Analysis*, a brief of twelve lectures on the George Leib Harrison Foundation, delivered in College Hall, University of Pennsylvania, February 5 to March 2, 1900.

ERRATA.

[Due to errors in the copy.]

Vol. VII, No. 11 (November, 1900), page 240, in the diagram,

for $\frac{\partial W}{\partial y}dy$, read $\frac{\partial W}{\partial y}dy=\delta$; for $i\frac{\partial V}{\partial y}dy$, read $-i\frac{\partial V}{\partial y}dy$; for idy, read $-idy$.

Page 241, line 7 from top,

$$\text{for } \frac{\partial V}{\partial y}dy=\frac{\partial U}{\partial x}dx, \text{ read } \frac{\partial V}{\partial y}=\frac{\partial U}{\partial x}.$$